Yian Su, Ph.D. Candidate

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Education

Sep 2021 – present
Ph.D., Northwestern University, Computer Science.
Advisor: *Simone Campanoni*
Research Interest: *Parallelizing & Optimizing Compilers, Runtime Techniques, Heterogeneous Systems.*

Sep 2018 – Jun 2020
Master's, Northwestern University, Computer Science.
GPA: 4.0/4.0
Thesis Committee: *Simone Campanoni* (Advisor), *Peter Dinda*
Thesis: *A Better Memory Understanding for Program Dependence Graph through Static-Value Flow Analysis.*

Sep 2017 – May 2018
University of Illinois at Chicago, Electrical and Computer Engineering.
Senior-year Exchange Program.
GPA: 4.0/4.0
Advisor: *Vladimir Goncharoff*
Project: *Intelligent Shopping Cart.*

Sep 2014 – Jun 2018
Bachelor's, Northeastern University, Computer Science.
GPA: 4.34/5.0
Ranking: 1/195

Publications

Conference Proceedings

1. **Y. Su**, B. Homerding, H. Gao, *et al.*, "The Parallel-Semantics Program Dependence Graph for Parallel Optimization," in *Proceedings of the 24th ACM/IEEE International Symposium on Code Generation and Optimization*, ser. CGO '26, Sydney, NSW, Australia: Association for Computing Machinery, 2026.

2. J. Giordani, Z. Xu, E. Colby, *et al.*, "Revisiting Computation for Research: Practices and Trends," in *2024 SC24: International Conference for High Performance Computing, Networking, Storage and Analysis SC*, Los Alamitos, CA, USA: IEEE Computer Society, 2024, pp. 1097–1110. DOI: 10.1109/SC41406.2024.00076.

3. **Y. Su**, M. Rainey, N. Wanninger, *et al.*, "Compiling Loop-Based Nested Parallelism for Irregular Workloads," in *Proceedings of the 29th ACM International Conference on Architectural Support for Programming Languages and Operating Systems, Volume 2*, ser. ASPLOS '24, La Jolla, CA, USA: Association for Computing Machinery, 2024, pp. 232–250, ISBN: 9798400703850. DOI: 10.1145/3620665.3640405.

4. Z. Xu, Y. Chon, **Y. Su**, *et al.*, "PROMPT: A Fast and Extensible Memory Profiling Framework," in *Object-oriented Programming, Systems, Languages, and Applications*, ser. OOPSLA '24, 2024.

5. A. Matni, E. A. Deiana, **Y. Su**, *et al.*, "NOELLE Offers Empowering LLVM Extensions," in *Proceedings of the 20th IEEE/ACM International Symposium on Code Generation and Optimization*, ser. CGO '22, Virtual Event, Republic of Korea: IEEE Press, 2022, pp. 179–192, ISBN: 9781665405843. DOI: 10.1109/CGO53902.2022.9741276.

6 C. Wang, **Y. Su**, L. Zhou, S. Peng, Y. Yuan, and H. Huang, "A Virtual Network Embedding Algorithm Based on Hybrid Particle Swarm Optimization," in *Smart Computing and Communication*, Cham: Springer International Publishing, 2017, pp. 568–576, ISBN: 978-3-319-52015-5.

Talks

May 2025 — **The Parallel-Semantics Program Dependence Graph and Its Use in Parallel Optimization**.
Research Talk, Northwestern University.

May 2024 — **Compiling Loop-Based Nested Parallelism for Irregular Workloads**.
Paper Presentation, ASPLOS'24.

Dec 2023 — **Effectively Scheduling Nested Fork-join Parallelism with Irregular Workloads**.
Liberty Research Group, Princeton University.

Effectively Scheduling Parallel Programs over Parallel Architectures.
Ph.D. Qualifying Exam, Northwestern University.

Jul 2023 — **Democratizing Heartbeat Scheduling via Heartbeat Compiler**.
The Constellation Project Workshop, Northwestern University.

Work Experience

Sep 2024 – Mar 2025 — **HPC Compiler Intern,** NVIDIA Corporation.
Implemented an HPC compiler that reduces engineer effort for writing accelerator-specifc, less portable parallel program using JIT compilation techniques and MLIR framework.

Jun 2020 – Sep 2021 — **Software Development Engineer,** Amazon.com.
Collaborated with front-end and research teams, implemented and launched a product recommendation widget worldwide on the Amazon website.

Jun 2019 – Sep 2019 — **Software Development Engineer Intern,** Amazon.com.
Designed and implemented an automated data pipeline to generate a new feature in Amazon's search process to decrease the search defects rate.

Teaching Experience

Sep 2019 – Dec 2019 — **Teaching Assistant,** Northwestern University.
Introduction to Database Systems and Data Warehouse.

Skills

Programming Languages — C, C++, Python, Java, Markdown, LaTeX.
Softwares — LLVM, MLIR, Git, VS Code, Jupyter Notebook.
Sports — Soccer.
Instruments — Violin.

Miscellaneous

Awards

Apr 2024 — **Travel Grant**, ASPLOS'24.
May 2018 — **Winner**, Computer Engineering Category at UIC EXPO 2018.

Miscellaneous (continued)

Nov 2017 **National Scholarship**, Northeastern University.
Nov 2016 **National Scholarship**, Northeastern University.

Activities

Sep 2024 **Associate Concertmaster**. Tualatin Valley Symphony.
Jan 2024 **Associate Concertmaster**. Northwestern Philharmonia.
Sep 2018 **Vice President of Membership**. Northwestern Toastmasters Club.
Apr 2016 **Vice President**. Northeastern International Communication Club.